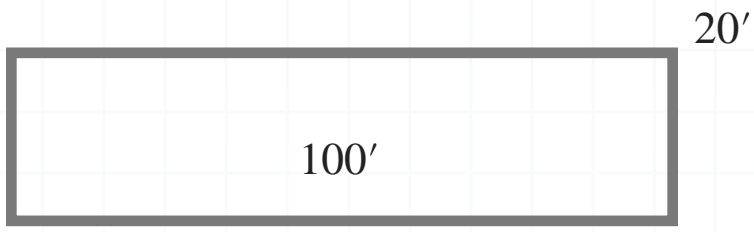
Topic: Area of a rectangle

Question: Find the area of the rectangle.



Answer choices:

A $2{,}000\ \text{in}^2$

B $2{,}000\ \text{in}^3$

C $200\ \text{in}^2$

D $200\ \text{in}^3$

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Solution: A

We'll use the formula

$$A = bh$$

where A is area, b is the length of the base of the rectangle, and h is the length of the height of the rectangle.

Plugging in the dimensions of the rectangle we've been given, we get

$$A = (100)(20)$$

$$A = 2{,}000 \text{ in}^2$$

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Topic: Area of a rectangle

Question: Find the total area of the three doors.

A large house has three garage doors, each of which is made of four rectangular panels. Each panel is 24 inches high and 108 inches long. The home owner wants to repaint them and needs to know the total area of the three doors so she can buy enough paint. Paint coverage is generally listed on the can in square feet.

Answer choices:

A $18\ \text{ft}^2$

B $72\ \text{ft}^2$

C $216\ \text{ft}^2$

D $432\ \text{ft}^2$

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Solution: C

The dimensions of one panel in feet are

$$\frac{24}{12} = 2 \text{ ft high}$$

$$\frac{108}{12} = 9 \text{ ft long}$$

The area of one panel is given by

$$bh = 9 \text{ ft} \cdot 2 \text{ ft} = 18 \text{ ft}^2$$

Three doors of four panels each give us a total of

$$3 \cdot 4 = 12 \text{ panels}$$

The total area of all 12 panels is

$$12 \cdot 18 \text{ ft}^2 = 216 \text{ ft}^2$$

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Topic: Area of a rectangle

Question: Find the answer to the nearest hundredth of a meter.

A rectangular wall has a height that is $1/3$ its base. If the area of the wall is 24 m^2, how long is the base of the wall?

Answer choices:

A 2.83 m

B 8.00 m

C 8.49 m

D 10.17 m

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Solution: C

Let the height be x, which will make the base $3x$. Multiply those together to get area.

$$A = bh = 3x \cdot x = 3x^2$$

Since area is 24 m^2, we can then say

$$3x^2 = 24$$

$$\frac{3x^2}{3} = \frac{24}{3}$$

$$x^2 = 8$$

$$x = \sqrt{8}$$

According to the way we set up the problem, this is the height of the wall, which we can now use to find the base.

$$3x = 3\sqrt{8} \approx 3 \cdot 2.828 \approx 8.485 \approx 8.49 \text{ m}$$

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